

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
19 August 2004 (19.08.2004)

PCT

(10) International Publication Number  
**WO 2004/069201 A3**

(51) International Patent Classification<sup>7</sup>: **A61K 38/16**

(21) International Application Number:  
PCT/US2004/003143

(22) International Filing Date: 3 February 2004 (03.02.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/444,391 3 February 2003 (03.02.2003) US

(71) Applicant (for all designated States except US): **MED-LOGICS DEVICE CORPORATION** [US/US]; 3589 Westwind Blvd., Santa Rosa, CA 95403 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **WANG, Yuqiang** [CA/US]; 938 November Drive, Cupertino, CA 95014 (US). **LARRICK, James, W.** [US/US]; Star Route Box 48, Woodside, CA 94602 (US). **WRIGHT, Susan, C.** [US/US]; 13531 Old Oak Way, Saratoga, CA 95070 (US).

(74) Agent: **MORENCY, Michel**; Greenberg Traurig LLP, One International Place, Boston, MA 02110 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

(88) Date of publication of the international search report:  
19 May 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **COMPOUNDS USEFUL IN COATING STENTS TO PREVENT AND TREAT STENOSIS AND RESTENOSIS**

(57) Abstract: At least one bioactive agent is locally delivered to a location where a stent is implanted within a lumen in a patient's body. The bioactive agent includes a: DNA minor groove binder (such as CC-1065 or Duocarmycin); apocynin; RGD peptide (such as RGDfV); stilbene compound (such as resveratrol); camptothecin; des-aspartate angiotensin I; or ADF; or an analog or derivative thereof; or a combination or blend thereof with at least one other bioactive agent. The bioactive agent is generally locally delivered, such as by elution from the stent. The compounds and methods are of particular benefit for treating or preventing atherosclerosis, stenosis, restenosis, smooth muscle cell proliferation, occlusive disease, or other abnormal luminal cellular proliferation condition.

WO 2004/069201 A3

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/03143

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A61K 38/16

US CL : 514/18

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 514/18

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
STN and EAST

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No. |
|------------|---|-----------------------|
| X          | WO 00/00238 A1 (QUANAM MEDICAL CORPORATION) 06 January 2000   | 1, 9, 24-30           |
| ---        | (06.01.2000), see entire document, e.g. pages 1-18 and figures.   |                       |
| Y          |   | 2-8, 10-16            |
| Y          | BROSH et al. Potent Inhibition of Werner and Bloom helicases by DNA minor groove binding drugs. Nucleic Acids Research. 2000. Vol. 28, No. 12, pages 2421-2430. See, e.g. page 2421 and 2429.   | 2-3, 12               |
| Y          | US 5,902,831 A (HOLLAND et al) 11 May 1999 (11.05.1999). See entire document, e.g., claims.   | 4, 13-14              |
| Y          | BILATO et al. The Inhibition of Vascular Smooth Muscle Cell Migration by Peptide and Antibody Antagonists of the $\alpha$ v $\beta$ 3 Integrin Complex is Reversed by Activated Calcium/Calmodulin-dependent Protein Kinase II. The Journal of Clinical Investigation. August 1997, Vol. 100, No. 3, pages 693-704. See, e.g., pages 693-694. | 5-6                   |
| Y          | US 6,211,247 B1 (GOODMAN) 03 April 2001 (03.04.2001). See entire document.  | 7-8, 16               |
| Y          | US 6,100,237 A (SIM) 08 August 2000 (08.08.2000). See entire document.  | 10                    |



Further documents are listed in the continuation of Box C.



See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

24 November 2004 (24.11.2004)

Date of mailing of the international search report

12 JAN 2005

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US

Commissioner for Patents

P.O. Box 1450

Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

*Marcela M Cordero Garcia*

Telephone No. (571) 272-1600

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/03143

## Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.: 20-22  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:  
Claims 20-22 are drawn to SEQ Ids No. 1-3, but no computer readable form of the sequence listing was furnished for this application.
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest ☐ The additional search fees were accompanied by the applicant's protest.  
☐ No protest accompanied the payment of additional search fees.